

SNORKEL SCAT METHODOLOGIES AND STANDARD OPERATING PROCEDURES

I. General

Performing Snorkel SCAT surveys on near shore sub tidal areas for oiling has several difficulties not found on land. The Snorkel SCAT team has to deal with changing tides and surf conditions. The shoreline and near shore sand bars are constantly shifting. The changing conditions affect how effectively an area can be surveyed. Since the inception of Snorkel SCAT in late August 2010, we have found the changing shoreline and sandbars have alternately covered and uncovered buried oil mats as well as have accounted for the redistribution of SRBs and SRPs in the near shore.

Our team utilizes a sharp shooter shovel to collect profile data. The shovel allows us to collect profile data down to generally 18" or 45cm below the surface. The length of the shovel restricts our ability to collect data over areas with newly deposited thick sandbars.

We have surveyed areas in which a thick sand bar has covered a portion of the near shore and the resulting survey did not reveal any significant oiling only to come back later to find the sand bar has moved revealing a significant oil mat or buried oil layer. We have also located buried SRB's which have consolidated into thinner heavily oiled layers during some tide conditions and then expanded into wider less consolidated layers when resurveyed at a later date. The height of the tide during working hours also affects when oiled impacted layers or mats can be removed utilizing long reach track hoes. After several weeks of investigation, we discovered it was very important to work closely with Operations to coordinate the timely removal of oiling discovered during Snorkel Scat. We found the shoreline and sand bar movement quickly covered exposed oiling making it nearly impossible for Operations to recover oiling based on information collected more than a couple of days earlier.

II. Profile Locations

Initial profile locations were determined based on potential oil mat targets provided by Operations and SCAT Team Leaders collected after the initial oiling hit the shoreline. These potential mat locations were investigated by Snorkel SCAT Teams to determine the possible extent of the buried oiling along the near shore area. Once it was established there was buried oiling in the near shore, the Snorkel SCAT Team began a more extensive survey of the areas in which the majority of the oil mats had been detected. Based on the initial survey, we concentrated the majority of our efforts from the Little Lagoon inlet west to the Fort Morgan Peninsula in Alabama. However, the team works with Operations and other SCAT Team Leads to determine and investigate potential mat or snare locations based on recovery totals combined with the type of oiling located (ie fresh or weathered; thick or flat; angular or rounded) in order to

prioritize areas for investigation. These reports have led to investigations in all four states impacted by oiling.

III. Team Composition

A normal Snorkel SCAT Team is comprised of at least seven (7) team members. The team has one (1) GPS operator; two (2) shovel technicians; one (1) data recorder; two (2) safety boat crewmen; and one (1) communication technician. The team may also include a Coast Guard Representative, State Representative, Safety Representative, Natural Resource Advisor, Reach Tribal Monitor and/or archeologist. These other team members may perform one or more of the duties of the original seven team members if they are properly trained and have proper PPE.

The safety boat is normally the rigid inflatable boat with motor which is towed to the site attached to the UTV, but can be a motorized crewboat or airboat as long as there is a captain and crewman to crew the boat.

Team members that work in the water should be in good shape and able to swim comfortably in rough surf conditions. These team members are required to have at a minimum the Basic SCUBA certification. Further training requirements and PPE requirements can be found on the JSA and the Revised Health and Safety Plan.

IV. Data Collection

The sample methodology developed in the first few weeks of Snorkel SCAT investigations included the following:

- an initial assessment of the shoreline oiling in the surf zone;
- pothole transects along the shoreline and inside the first sand bar;
- pothole transects outside the first sand bar (surf conditions permitting);

We collect data from sample locations which are collected along transects that are 10 meters apart, with the sample taken at the top of the swash zone, on the plunge line, then roughly every 5 meters. These grids can be modified based on special instructions or specific shoreline or oiling conditions (ie to avoid relic marsh platforms). The team can usually dig pits in water depths to about shoulder height depending on surf conditions. The position of each profile site is collected via WAAS enabled GPS by one member of the team. Then two samples are collected from either side of the GPS person and the highest distribution (worst case) is recorded by a fourth member of the team. The information collected for each site included:

- location of the site;
- substrate material;
- surface oiling conditions;
- the type of oiling if any found in the profile;

- the amount of oiling in the profile;
- the depth of the oiling in the profile;
- Water Depth;

The amount of oiling found in the profile is expressed as a percentage of oiling within a particular band width. If the band width is 5 cm or less than the default band width is 5cm. This allows a more uniform data set and allows ease of comparing oiling conditions. The type of oiling found in the near shore is usually found to be one of the following:

- scattered SRB's throughout the profile;
- layered SRB's in a defined band;
- layered oil/sand/shell mixture buried mat;
- multi-layer oil/sand/shell mixture buried mat;
- buried oil mixture mat with SRB's scattered throughout the profile;
- stained oil causing sheening (this is usually found with a mat or SRB layer);
- partially exposed oiling mixture mat;

The amount of sand and shell mixed with the oil mat layer can vary greatly and affects the ability of the long reach hoe to sift the material in the bucket. An oiling layer with a lot of small shell hash mixed with the oil is extremely friable and will wash out of the bucket with the rest of the sand.

The data is then transferred to Shoreline Oiling Summary forms specially developed and modified for Snorkel SCAT. This data is then used to develop near shore oiling maps. We found that a special oiling matrix was needed to be developed to categorize the type and amounts oiling found in the near shore. The matrix categories are then used to develop the near shore oiling maps.

The following matrix was developed specifically for Snorkel Scat to aid in categorizing buried sub tidal and near shore oiling:

Layer Thickness	Percent Distribution				
	0.5-2%	3-9%	10-19%	20-29%	30% or Greater
0-4 cm	Very Light	Very Light	Light	Medium	Heavy
5-9 cm	Very Light	Light	Medium	Medium	Heavy
10-19 cm	Light	Light	Medium	Heavy	Heavy
20-29 cm	Light	Medium	Medium	Heavy	Heavy
30 + cm	Light	Medium	Heavy	Heavy	Heavy